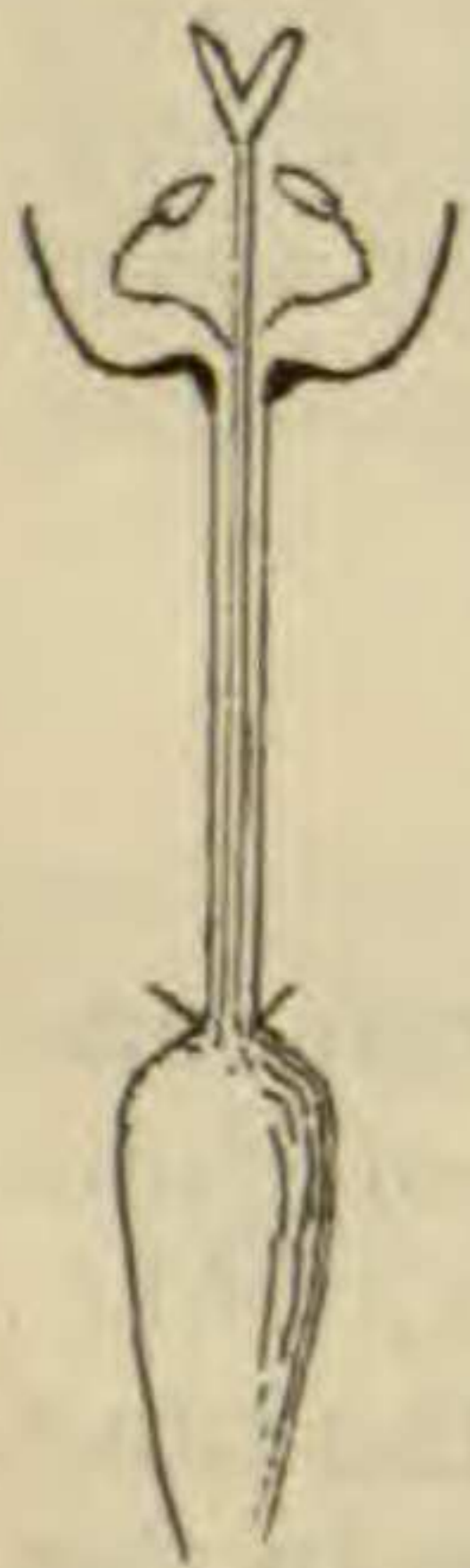


Botany in the American Association.

The following papers were read before the Biological Section of the A. A. A. S. at Toronto ;

On the position of nectar glands in Echinops, by THOMAS MEEHAN.

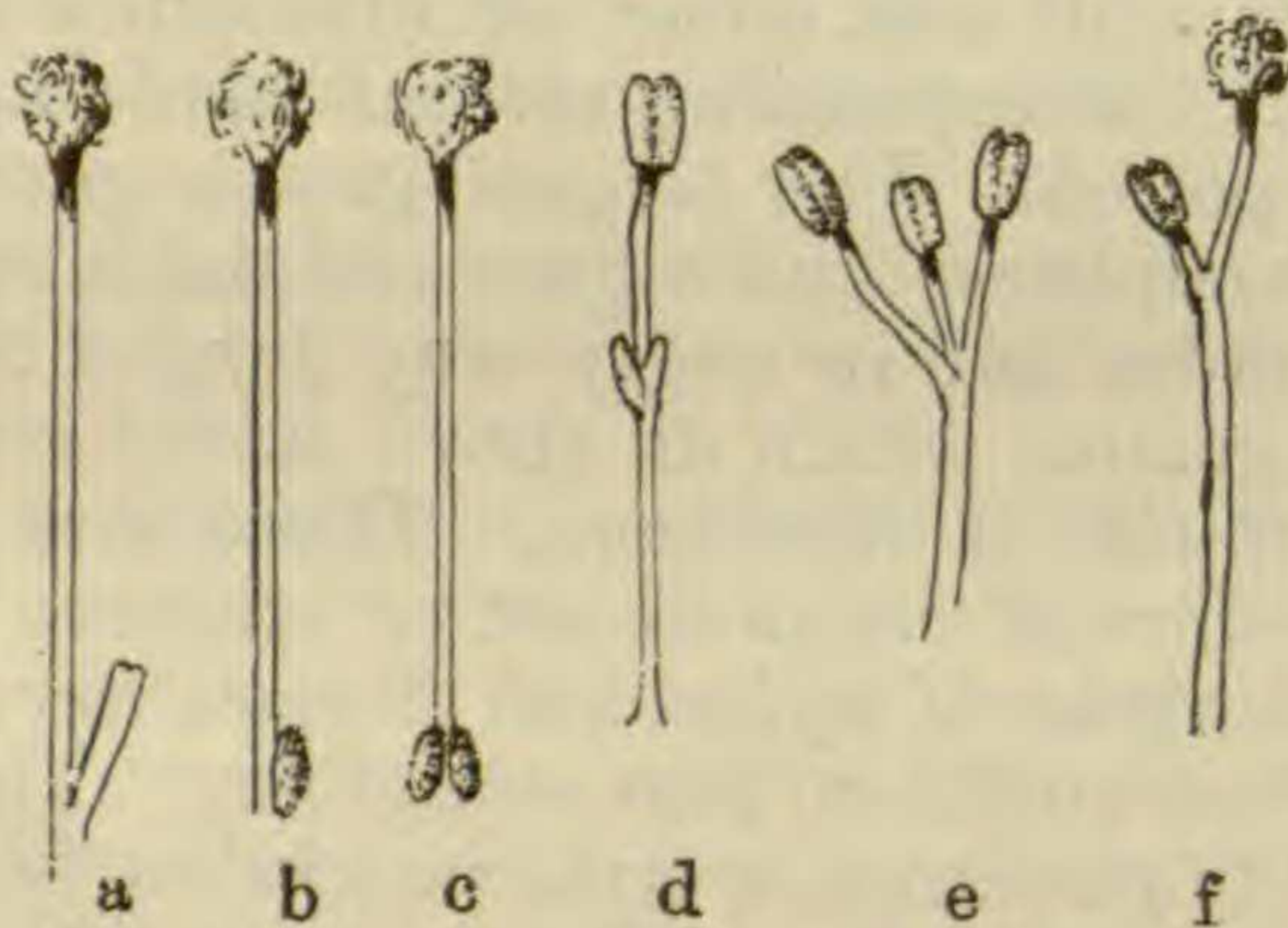


Section of
flower of
Echinops.

The comparatively long corolla tube is quite filled with the style, leaving no passage for the tongues of insects. The nectar glands, however, instead of being at the base of the tubes as usual, are at the top. This arrangement permits the nectar, which is very abundant, to be taken by short tongued insects. The plant has recently come into cultivation for bees.

On the epigynous gland in Diervilla, and the genesis of Lonicera and Diervilla, by THOMAS MEEHAN.

At the base of the style in Diervilla there is a large gland (*a*), the significance of which has not been explained. In Lonicera there is a small gland (*b*) readily overlooked, or rather a pair of glands (*c*.) Careful inspection will also show the gland in

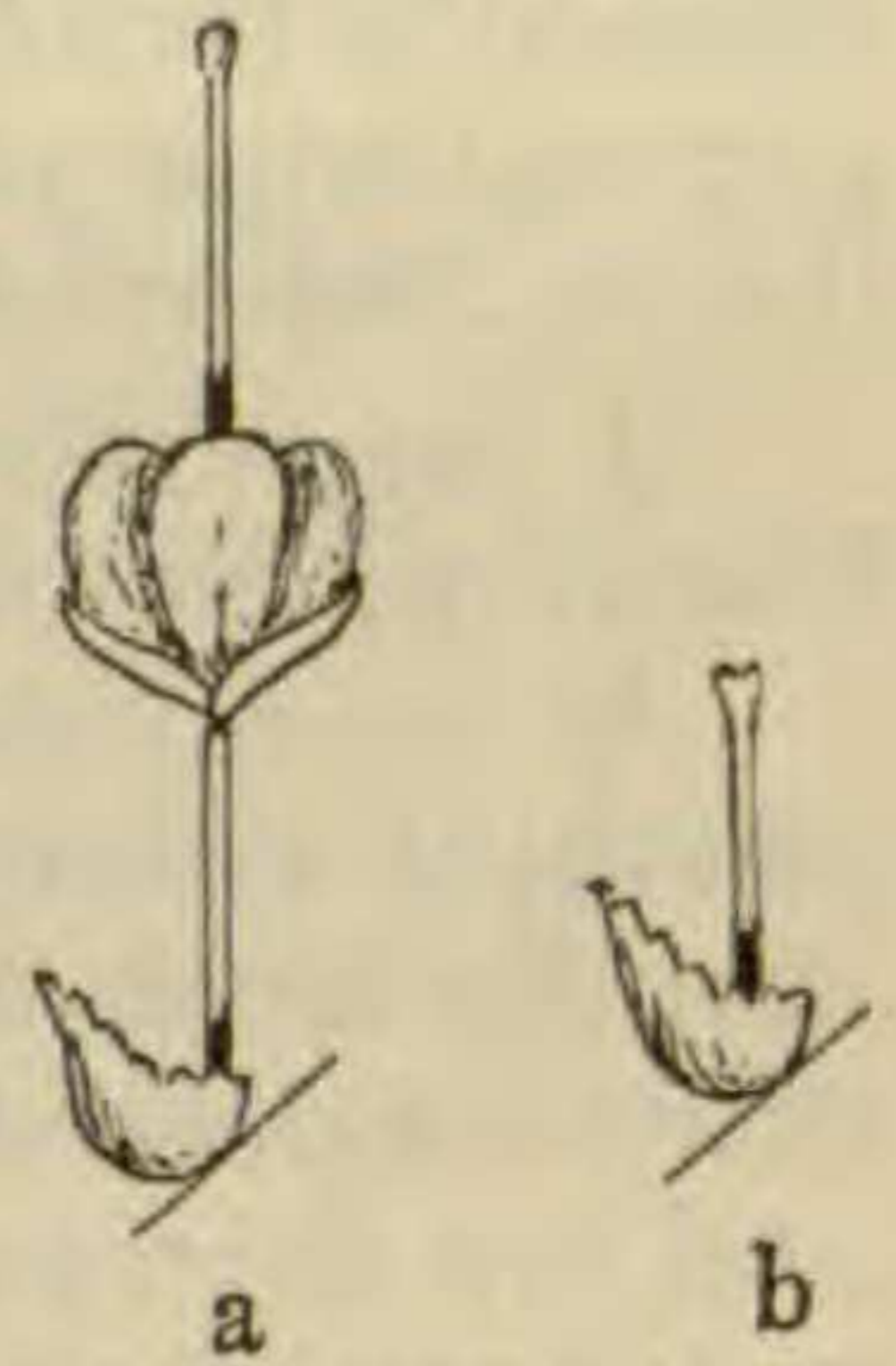


Style of Diervilla *a*, and stamens and styles of Lonicera *b* to *f*.

Diervilla to be double. In the cultivated honeysuckle, *L. sempervirens*, there are rudiments of glands (*d*), and in a monstrous form these are replaced by stamens (*e*). An instance was once seen of a stamen borne laterally upon the style (*f*). From this series of forms it seems clear that the glands in Lonicera and Diervilla are really rudimentary branches.

On the assumption of floral characters by axial growths in Andromeda Catesbæi, by THOMAS MEEHAN.

This species has been considered diœcious. What has been taken as a flower (*a*) with abortive stamens in the sterile plant is shown by comparison with the corresponding parts of a fertile flower (*b*); to be only the pedicel with petaloid bracts at its base.



Floral parts of *Andromeda Catesbæi*.

On the significance of diœcism as illustrated by Pycnanthemum, by THOMAS MEEHAN.

The author observed that plants of *P. muticum*, with apparently perfect flowers, produced no seeds, while plants growing near *P. lanceolatum*, evidently without stamens, were well provided with seeds. As no other plants of these species grew in the vicinity, it seems to be a case of hybridism. This was used to illustrate the author's belief that hybridism is not a factor in evolution, but a conservative force in heredity, and that diœcism does not favor the evolution of forms, but acts as the handmaid of heredity, to bring back toward the normal condition forms that have wandered.

Some physiological traits of the solid-stemmed grasses and especially of Indian corn, by F. L. STEWART.

The author had ascertained by several seasons' experiments that when corn has the ears removed at the time the kernels are hardening, that the life of the plants is greatly prolonged, and the sugar in the stock much increased. The economic bearing of this fact was indicated.

On the genus Eleocharis in America, by N. L. BRITTON.

There are about forty North American species, of which thirty-six belong to the United States. *E. pygmæa* and *E. pauciflora* are excluded from the genus. No new species are made.

On the tropical distribution of certain sedges, by N. L. BRITTON.

The abundance of species in different genera in the new and old worlds were compared, and also to some extent their boreal and austral distribution.

On the flora of New Jersey, by N. L. BRITTON.

Giving some account of the collection of data for the compilation of the final report on the flora of the state, which is soon to be issued.

The new botanical laboratory of Barnard College, by N. L. BRITTON.

This is the annex for women to Columbia College, to be opened in October. The botanical department is under the general supervision of Dr. Britton, but the students will be in the immediate charge of Miss Emily L. Gregory.

A suggestion concerning scientific work, by WILLIAM R. DUDLEY.

As economic interests largely determine the direction of scientific research in this country, it is well to bear in mind that the fresh-water algæ, up to the present time almost entirely neglected, hold an important place in sanitary matters, and are therefore entitled both from a scientific and an economic stand-point to more attention from investigators.

Notes on seedlings of Elymus Virginicus, by W. J. BEAL.

Notes on bird's-eye maple, by W. J. BEAL.

These papers were illustrated, especially the latter, with many excellent and interesting specimens. Various forms of bird's-eye markings were described, both in the maple and other kinds of woods. Tracing them back to their earliest stages did not reveal anything regarding the inciting cause or causes.

Notes upon stamens of Solanaceæ, by BYRON D. HALSTED.

Solanaceous stamens have three modes of dehiscence, and in other ways show much diversity, but one character appears to be general and limited to the order. This is the presence of a cone or "columella" in each theca. Apparent exceptions will be met with in examining mature stamens, as in *Datura*, which, however, find explanation in the early stages of growth. This character in connection with measurement of the pollen furnishes valuable aids in classification of the members of the order.

Reserve food substances in twigs, by BYRON D. HALSTED.

The details of the observations have been given in Bulletin No. 4 of the Iowa Agric. Exper. Station. He concludes that a deposition of starch is an indication of maturity, and only indirectly of the hardness of the plant. Grit due to the lignification of the pith cells in pear, apple, etc., is associated with the deposition of starch.

A bacterial disease of carnations, by J. C. ARTHUR.

The disease appears to be wide spread, but its characters were not heretofore well defined. It shows most prominently in a gradual dying of the leaves and general weakening

of the plant. The points of attack are easily visible in the early stages of the disease, as transparent spots when viewed by strong transmitted light. A Micrococcus, pure cultures of which were shown, has been demonstrated to be the cause of the disease, by direct artificial infection.

Grasses of Roan Mountain, by F. LAMSON SCRIBNER.

Published in full in another part of this journal.

Revision of the United States species of Fuirena, by FRED. V. COVILLE.

Three species are admitted: *F. scirpoidea* Michx., *simplex* Vahl, and *squarrosa* Michx., and vars. *hispida* Chapm. and *pumila* Torr. of the last species. These can be distinguished by the perianth scales and bristles.

A bacterial disease of Indian corn, by T. J. BURRILL.

Has been known some time, but its nature not recognized until recently. The plants have a yellowish and dwarfed appearance, with exudation near the ground. The bacteria have been cultivated.

An observation on Calamintha Nuttallii, DAVID F. DAY.

The first flower is apical and contains five nutlets instead of the usual four. This appears to be a step toward the peloric condition.

Fermentation of ensilage, by T. J. BURRILL.

The temperature usually rises during the fermentation of ensilage to a point (60° C.) that stops most if not all growth except that of a single species of bacteria. As the temperature falls secondary changes occur, especially the formation of lactic and acetic acids.

Modern teaching appliances in biology, by R. R. WRIGHT.

Professor Wright took this occasion to show and explain the various rooms and fittings of the new and handsome biological building in which the meetings of the section were held. All the appointments show much thought, and wise and liberal expenditure. Among the botanical appliances were Brendel and Auzoux models, Kny and Dodel-Port charts, Noll's growth apparatus, and three patterns of Leitz microscopes. In the upper story were conservatories and tanks for water plants built of granitic cement.

On a convenient method of subjecting living cells to coloring agents, by GEORGE L. GOODALE.

Read by title.

The following paleobotanic paper was read before the Geological Section:

On certain remarkable new fossil plants from the Erian

and Carboniferous, and on the characters and affinities of the Paleozoic gymnosperms, by Sir WILLIAM DAWSON.

The paper was based upon material recently discovered. Stem, leaves and fruit from the Erian of Pennsylvania serve to establish a new genus and species, *Dictyocordaites Lacoii*, and other unusually perfect material from the same State and from Prince Edward island enable the author to clear up several obscure points in relationship.

The Botanical Club of the A. A. A. S.

It has been the custom of the club from its inception, with possibly an interruption at the Cleveland meeting, to hold its first session on Thursday, the second day of the association. This year did not prove an exception, although both the permanent secretary of the association, in his annual circular, and the secretary of the club, in a special circular, announced the first meeting for Tuesday, the day before the opening of the association. There are good reasons why the opening session should be on Wednesday, but it is doubtful if an earlier date will ever be found practical.

THURSDAY, AUGUST 29.—Shortly after 9 A. M. the president, Dr. T. J. Burrill, called the club to order, the secretary, Dr. Douglas H. Campbell, and a fair number of members being present.

The opening paper was by Mr. Thomas Meehan, who described the arrangement of stamens and pistils in *Hypericum Canadense*, showing that the styles are entangled among the stamens from the first, and claiming this to be an arrangement for self-fertilization. Dr. E. L. Sturtevant spoke of the self-fertilization of the common garden pea, and of the failure of the English bean (*Faba vulgaris*) to produce many pods in American gardens, although flowering freely. Mr. David F. Day had observed that the rose acacia (*Robinia hispida*) bloomed freely about Buffalo, N. Y., but set few pods, and examination had shown little pollen in the anthers. He also stated that the garden variety of *Oenothera biennis* expands its flowers with pollen already deposited on the stigmas. Mr. F. V. Coville said that *Lupinus perennis* also discharges pollen in the bud, but that in this case the stigma is not at the time in a receptive condition. Dr. B. D. Halsted, in his examinations of the garden pea, had found no germinating pollen